Human Health Risk Assessment Workshop #1: Equations for Revised Preliminary Human Health Risk Model

Equation 1

$$HQ_{Se,site} = \frac{Dose_{Se,diet} + Dose_{Se,supplements} + \Delta Dose_{Se,beef} + \Delta Dose_{Se,fish}}{cRfD_{Se}}.$$

Equation 2

$$HQ_{Se,background} = \frac{Dose_{Se,background}}{cRfD_{Se}}.$$

Equation 3

$$Dose_{Se,background} = Dose_{Se,diet} + Dose_{Se,supplements} = \frac{ADI_{Se,diet} + ADI_{Se,supplements}}{BW}.$$

Equation 4

$$\Delta Dose_{Se,beef} = \frac{\left\langle \left\{ \left[\frac{\left(C_{Se,beef,site,pasture,mean} - C_{Se,beef,background,mean} \right)}{2^{DT/BHL_{Se}}} \right] + C_{Se,beef,background,mean} \right\} - C_{Se,beef,background,mean} \right\rangle \times IR_{beef} \times F_{beef,site} \times EF}{UCF_t \times BW}.$$

Equation 5

$$\Delta Dose_{Se,fish} = \frac{\left(C_{Se,fish,site,mean} - C_{Se,fish,background,mean} \right) \times IR_{fish} \times F_{fish,site} \times EF}{UCF_t \times BW}.$$

Equation 6

$$cRfD_{Se} = \frac{cNOAEL_{Se}}{UF_{H,Se}}.$$

Equation 7

$$HQ_{Se,site} = \frac{ADI_{Se,diet} + ADI_{Se,supplements} + \frac{\left\langle \left\{ \left[\frac{\left(C_{Se,beef,site,pasture,mean} - C_{Se,beef,background,mean} \right)}{2^{DT/BHL_{Se}}} \right] \times IR_{beef} \times F_{beef,site} \right\} + \left\{ \left(C_{Se,fish,site,mean} - C_{Se,fish,background,mean} \right) \times IR_{fish} \times F_{fish,site} \right\} \right\rangle \times EF}{UCF_t}}{BW \times \frac{cNOAEL_{Se}}{UF_{H,Se}}}.$$

Equation 8

$$HQ_{Se,background} = \frac{ADI_{Se,diet} + ADI_{Se,supplements}}{BW \times \left(\frac{cNOAEL_{Se}}{UF_{H,Se}} \right)}.$$